DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB52

Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Lower Keys Population of the Rice Rat (Silver Rice Rat)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to list the Lower Keys population of the rice rat, or silver rice rat (*Oryzomys palustris natator* [=*Oryzomys argentatus*]), a small mammal restricted to wetlands of the Lower Keys of Monroe County, Florida as endangered. This species is known to occur on nine keys, generally at low population levels. It is believed extirpated from one key where it formerly occurred, and may also have been extirpated from two other keys. The species is endangered by habitat loss due to residential and commercial development, and by predation, competition, and habitat modification from various introduced mammals. Its low populations may endanger it because of reduced genetic variability. This proposal, if made final, would extend the protection of the Endangered Species Act of 1973, as amended, to the silver rice rat.

DATES: Comments must be received by December 24, 1990. Public hearing requests must be received by December 10, 1990.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, U.S. Fish and Wildlife Service, 3100 University Boulevard South, suite 120, Jacksonville, Florida 32216. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Mr. David J. Wesley, Field Supervisor, at the above address (904/791-2580 or FTS 946-2580.

SUPPLEMENTARY INFORMATION:

Background

Rice rats (*Oryzomys*) are New World rats of generalized rat-like appearance, with coarse fur and a long, sparsely-haired tail. The genus occurs from the southeastern U.S. and Mexico through Central America to northern South America. Rice rats occur on the Galapagos Islands and on several islands in the Caribbean. Hall (1981) recognized five subgenera, and over a dozen species, in North and Central America. Numi Spitzer (now Goodyear) trapped two rice rats in a fresh water marsh on Cudjoe Key in the Lower Keys of Monroe County, Florida in 1973, and believed that they represented a new species or subspecies of *Oryzomys* (Spitzer 1978). These two specimens were later used to describe a new species, *Oryzomys argentatus* (Spitzer and Lazell 1978). *Q. argentatus* was diagnosed as differing from other species in the subgenus *Oryzomys* (one of five subgenera in the genus *Oryzomys*) in lacking digital bristles projecting beyond the ends of the

median claws on the hind foot; and in having large, wide sphenopalatine vacuities; a slender skull with long narrow nasal bones; and silver-grey pelage dorsally. Spitzer and Lazell (1978) stated that *Q. argentatus* could be separated from *Q. palustris*, the common marsh rice rat of the southeastern U.S., by skull comparisons. They computed a ratio based on the maximum length of both nasals divided by their combined width; this number was then compared to the quotient of the condylobasal length divided by the zygomatic width. *Q. argentatus* specimens had high scores for both ratios, and could be separated from 105 *Q. palustris* by plotting the ratios on two axes. The measurements of the holotype and paratype specimens, respectively, in millimeters (inches) were: total length 251 (9¾, 259 (10¼); tail length, 121 (4¾), 132 (5¼); hind foot length, 32 (1¼), 32 (1¼); length of ear from notch, 17 (¾, 18 (¾) (Spitzer and Lazell 1978).

An unpublished report (Vessey *et al.* 1976) resulting from a biological study of Raccoon Key in the Lower Keys found that rice rats were common there; the investigators considered them to be *O. palustris* but subsequent examination showed that they were silver rice rats. In 1978 and 1979, Humphrey and Barbour (1979; Barbour and Humphrey 1982) trapped for silver rice rats at the type locality on Cudjoe Key and at sites on Little Torch, Middle Torch and Sugarloaf Keys. They caught no rice rats, and believed that the species had been extirpated from these keys. They also suggested that the characters used to distinguish *O. argentatus* were more indicative of subspecific rather than specific status.

In Service-funded status survey work (Spitzer 1982; Goodyear 1984), Goodyear trapped silver rice rats on eight additional Lower Keys, confirming their presence on Raccoon Key. The additional sites consisted of salt, rather than fresh water marsh. Using radiotelemetry, she found that silver rice rats used three vegetational zones: 1. Low intertidal areas, usually flooded, vegetated with mangroves (*Rhizophora mangle* and *Avicennia germinans*), and used for foraging and travelling; 2. Saltmarsh flats, flooded only occasionally, with low grassy vegetation (*Distichlis spicata, Batis maritima*, and *Sporobolus* sp.) and used for foraging and nesting; and 3. Elevated areas flooded only by the highest tides, vegetated with abundant grasses (*Distichlis* and *Sporobolus*), sea oxeye (*Borrichia frutescens*) and buttonwood (*Conocarpus erectus*), and used mainly for nesting. She found that silver rice rats had unusually large home ranges (about 20 hectares (50 acres)) and occurred at very low densities for a small rodent. Both plant (seeds and plant parts) and animal foods (arthropods) are taken by silver rice rats (Spitzer 1983). She was unable to find rice rats in the Upper Keys and concluded that inadequate marsh habitat was available there. Further information on the ecology of the silver rice rat is provided in Spitzer (1983).

Goodyear and Lazell (1986) compared nine skulls of *O. argentatus* (including some related laboratory-reared animals) with 109 skulls of six subspecies of *O. palustris*, using canonical discriminant function to analyze four skull variables (condylobasal length, zygomatic breadth, nasal length, and nasal width) and to generate three models based on preselected taxonomic arrangements. The statistic Roy's Greatest Root was used to determine which model best fit the data. It was concluded that the taxonomic arrangement with the best fit considered *O. argentatus* and *O. palustris* to be separate taxa.

Humphrey and Setzer (1989) revised the genus *Oryzomys* in the U.S., including six subspecies of *O. palustris*, *O. couesi*, and *O. argentatus*. They analyzed twelve skull measurements and pelage color. They did not include nasal width as a character (one of the characters considered diagnostic for *O. argentatus* by Spitzer and Lazell (1978)), citing the lack of a standard position for taking this measurement. Their quantitative analysis included 261 *Oryzomys;* all were adult males except for the five specimens of *O. argentatus* available to them, which consisted of four subadults and one adult of unknown sex. Adult male Oryzomys are regarded as being more likely to show diagnostic skull characters (Merriam 1901). Humphrey and Setzer first examined the existing taxonomic arrangement of U.S. *Oryzomys* with principle components analysis. Only minor differences were found; canonical discriminant analysis was then used to maximize intergroup differences. A simplified taxonomic arrangement was compared to the original classification, using both of the above statistical methods. Overlap among groups of the original and simplified classifications was compared by testing for misclassification of specimens with discriminant function analysis. To avoid recognizing trivial differences resulting from discriminant analysis, the original variables were subjected to analysis of variance to show how the groups defined actually differed. These authors pointed out that canonical-discriminant function, as used by Goodyear and Lazell (1986), is designed to find differences, and that it is necessary to determine whether differences found are biologically meaningful. A colorimeter was used in an attempt to quantify pelage color objectively, but the samples so measured were judged too small to be analyzed statistically. They expressed concern that pelage color might vary with age, both in living animals and museum specimens. They also noted that some mainland specimens of *O. palustris* had silver pelage. Humphrey and Setzer concluded that a simplified taxonomy was more appropriate for U.S. *Oryzomys*, including only two subspecies of *O. palustris*; *O.p. palustris* in most of the southeast and *O.p. natator* in peninsular Florida. *O. argentatus* was considered to be synonymous with *O.p. natator*.

Service actions regarding the silver rice rat began with the receipt of a petition dated March 12, 1980, from the Center for Action on Endangered Species, requesting that the silver rice rat be listed as an endangered species. In the **Federal Register** of July 14, 1980 (45 FR 47365), the Service issued a notice accepting the petition and announcing a status review of the species. The 1982 amendments to the Endangered Species Act required that petitions of this kind, which were pending as of October 13, 1982, be treated as having been received on that date. Section 4(b)(3) of the Act, as amended, requires that, within 12 months of the receipt of such a petition, a finding be made as to whether the requested action is warranted, not warranted, or warranted but precluded by other activity involving additions to or removals from the Federal Lists of Endangered and Threatened Wildlife and Plants. On October 13, 1983, the Service made the finding that the determination of endangered was warranted but precluded by other listing activity. That finding was published in the **Federal Register** of January 20, 1984 (49 FR 2487), as corrected in the **Federal Register** of February 16, 1984 (49 FR 5977). In the case of such a finding, the petition is recycled and another finding is due in 12 months. Repeated findings of warranted but precluded were made on October 12, 1984 (published on May 10, 1985 (50 FR 19762)); on October 11, 1985 (published on January 9, 1986 (51 FR 24312)); on October 10, 1986 (published on June 30, 1987 (52 FR 25512)); and on October 14, 1987 (published on July 7, 1988 (53 FR 25511)).

In 1986, Drs. Henry Setzer and Steven Humphrey of The Florida Museum of Natural History advised the Service's

Jacksonville Field Office that their taxonomic work on U.S. rice rats, then in progress, indicated that the silver rice rat was not distinguishable from mainland rice rats (*O. palustris*) at either the specific or subspecific level. These authors believe that the silver rice rat is only a peripheral population of *O.p. natator*, a subspecies common in fresh and salt water marshes throughout the Florida peninsula.

As a result of the Humphrey-Setzer findings, the Service's Southeastern Regional Office requested that any decision on proposing the silver rice rat be delayed until the taxonomic issue could be resolved, and recommended that a panel of Service zoologists review the taxonomic controversy. Three zoologists from the Service's Division of Research were detailed to this task in July, 1986; they concluded that the Lower Keys rice rats were "* * * a weakly distinguished geographical variant of *O. palustris* that may be known as *O. palustris argentatus* * * *". They recommended that additional material, particularly adult males, be collected to assist in determining the taxonomic status of the silver rice rat. Based on this continuing uncertainty, the Service made a negative petition finding on December 9, 1988 (published on December 29, 1988 (53 FR 52746)). On January 6, 1989 (54 FR 562), the Service placed the silver rice rat in category 3B of the animal notice of review, indicating that it was not a taxon that met the Endangered Species Act's definition of a species. Such entities are not current listing candidates, but additional information can lead to reevaluation of their suitability for listing.

On December 20, 1989, Sierra Club Legal Defense fund, Inc. filed suit on behalf of the silver rice rat and James D. Lazell, Jr. in the U.S. District Court for the District of Columbia (*Silver Rice Rat and James D. Lazell, Jr.* v. *Lujan*, Civil Action No. 89-389), challenging the Service's decision not to proceed with listing the silver rice rat. The complaint stated, in part, that the Service had not adequately addressed listing the silver rice rat as a distinct population segment as defined in section 3(15) of the Act.

In a **Federal Register** review notice dated April 26, 1990, the Service announced a review period for listing the silver rice rat as a vertebrate population and rescinded the negative petition finding for the silver rice rat, returning the petition finding to the "warranted but precluded" category until the conclusion of the review. The notice also solicited general comments concerning standards that should be used to define vetebrate populations under the Act.

In a Stipulation of Parties dated May 3, 1990, the Service agreed to announce the results of its reconsideration of the previous decision by October 25, 1990. It was further agreed that if listing was appropriate, the "warranted but precluded" status would not be repeated, but that a final listing regulation would be published by May 1, 1991. This listing proposal constitutes the Service's finding required by the Stipulation of Parties, and the final petition finding for the silver rice rat.

Comments

One comment was received in response to the Service's July 14, 1980, notice of petition acceptance and status review for the silver rice rat. The Florida Department of Transportation stated that future projects of that agency could affect rice rat habitat, and that they would cooperate to protect such habitat. They pointed out that further distribution and habitat information was important to minimize impact on silver rice rat habitat. Service response: The Service agrees that, at that time, further information was needed before listing the species; accordingly, the Service funded status survey work (Spitzer 1982, Goodyear 1984) to provide additional information on distribution and habitat.

Ten comments were received in response to the April 26, 1990, review notice. Comments addressed both the issue of listing the silver rice rat and general listing policy with regard to distinct population segments of vertebrate species. Commenters included five individuals, four conservation organizations, and the Service's Division of Research (Biological Survey). Eight comments supported the listing of the silver rice rat, while two comments questioned the listing. Comments, and Service responses, can be categorized as follows:

Comment: The April 26 notice of review was prepared solely by the Service's Jacksonville Field Office and lacked input from other Service units. The notice contained misleading statements concerning the Service's previous use of the vertebrate population listings, and was a tactic of the field office to delay listing the silver rice rat and to develop a vertebrate population definition to exclude cases like the silver rice rat. The resulting definition would lead to the delisting of numerous rodent subspecies, a reduction in listing activity, and a loss of biodiversity. Service response: The notice of review was prepared by the field office at the request of the Service's Washington Office, and was reviewed and approved by the Service and the Department of the Interior prior to **Federal Register** publication. The Service is currently developing guidance on the vertebrate population listing issue. All interested parties, will have an opportunity to comment on thi guidance once developed. The Service believes that the review notice description of current vertebrate population listings was generally accurate, while recognizing that there are listings that differ from those described. The notice was not intended to delay potential listing of the silver rice rat, but to obtain further information; this was achieved. Vertebrate population listing policy has no bearing on the listing of valid subspecies; subspecies are by definition qualified for protection as "species" under the Endangered Species Act. The Jacksonville Field Office has prepared recommendations leading to the listing of eleven subspecies of plants and animals (including seven small rodents) and two vertebrate populations, a large proportion of such Service listings. The Service will continue to actively pursue its responsibilities to list subspecies and vertebrate populations.

Comment: The listing of every population of a widely distributed species or subspecies would not be merited or practical under the Endangered Species Act. Service response: The Service agrees with this view and, as discussed above, is developing standards to provide guidance in the listing of vertebrate populations.

Comment: Data were manipulated in an improper scientific manner to cause the silver rice rat to be delisted (sic), and the paper on which this action was based may not have been refered. Service response: Since the silver rice rat has not previously been federally listed, the Service assumes that the comment refers to the Service's December 29, 1988 (53 FR 52748) negative petition finding for the silver rice rat. This decision was based on the taxonomic revision of Humphrey and Setzer (1989), then in press in the *Journal of Mammalogy*, a refereed journal. The Humphrey-Setzer revision was not undertaken for the purpose of removing taxonomic recognition from the silver rice rat, but rather to taxonomically revise U.S. rice rats. Four other taxa of *Oryzomys* were synonymized in addition to the silver rice rat. The work used widely accepted taxonomic and statistical techniques, and was published in the same journal in which the original description of the rice rat

(Spitzer and Lazell 1978) was published. The Service recognizes that different investigators often come to different taxonomic conclusions and rejects the claim that, in the case of the silver rice rat, improper scientific methods were used by any party.

Comment: The Service's Division of Research (Biological Survey) stated that the silver dorsal pelage of the silver rice rat was the primary feature distinguishing the silver rice rat from Florida peninsula populations of *O. palustris*. They believed that the Florida Keys population of rice rats warranted protection under the Endangered Species Act regardless of its taxonomic status. Service response: The Service has considered these recommendations in preparing this proposed rule.

Comment: Dr. Goodyear's comments in response to the notice have resolved the taxonomic questions concerning the silver rice rat, and there is no need to consider whether it constitutes a distinct population segment. Service response: The Service disagrees that the taxonomic issue is resolved. Dr. Goodyear's comments included a manuscript that has not yet been fully reviewed or accepted for publication. Existing taxonomies are often changed. It is likely that further interpretations and publications concerning the taxonomic status of the silver rice rat will appear, although the scientific community may eventually come to a consensus on what taxonomic rank best fits the silver rice rat. At all times, however, the Service attempts to use the best available scientific information to make listing decisions.

Comment: The silver rice rat is distinct for geographic and genetic reasons and merits listing. Service respone: The Service has considered these factors in developing this listing proposal.

Comment: Commenters suggested several factors that could be used to define distinct population segments, including disjunctness, ecology, morphological and other variations, U.S. populations, and research value. Service response: The Service will consider these, and othe factors, in developing any future guidance or regulations concerning the listing of vertebrate populations.

Comment: There is no need for a Service policy review concerning vertebrate population segments. Only a few such petitions have been received; these have been and should continue to be addressed on a case-by-case basis. Service response: The Service feels that it is appropriate to develop guidelines on the vertebrate population listing policy at this time. The issue is not restricted to the petition responses, but also involves evaluation of candidates for listing. Both the Fish and Wildlife and Natural Marine Fisheries Services have received a number of recent petitions involving vertebrate population segments, and feel it would be helpful to provide guidelines or standards to assist in evaluating petitions and making decisions on listing candidates. The use of such standards would not obviate individual, case-by-case review of petitions or listing candidates.

Comment: Dr. Humphrey's comments noted the lack of diagnostic material (adult males) available during his work, and the difficulty in obtaining such material due to the endangered status of the silver rice rat afforded by the State listing (chapter 39-27.0011 of the Florida Administrative Code prohibits kill-taking of endangered and threatened species). He commented on the importance of locally adapted populations to provide resilience to environmental change, and the fact that many extirpations of local populations have occurred, and continue to occur, in Florida. In his opinion, the extent to which the Service listed vertebrate populations would be fundamentally a political decision. He noted that the Endangered Species Act was designed to prevent extinction, not endangerment, and thus was directed to a crisis condition. He included a manuscript showing that the methods used to revise U.S. rice rats (Humphrey and Setzer 1989) were able to distinguish a weakly differentiated extinct species of rice rat in Jamaica. Service response: The conservation importance of locally adapted populations will be considered in formulating guidance on vertebrate population listings. The Service notes that the threatened category under the Act does allow the Service to list species before they are endangered, but agrees that species may often have severe conservation problems before they are listed.

Comment: Dr. Goodyear's comments addressed the taxonomic question concerning the silver rice rat. She enclosed a manuscript providing further information supporting the distinctiveness of the species. Dr. Goodyear reiterated her belief that the silver rice rat represented a distinct species. She stated that the Humphrey and Setzer (1989) paper was not a sound analysis of *O. argentatus* for the following reasons: No known adult males of *O. argentatus* were examined. The colorimetric data were plotted on different scales. Only one diagnostic skull measurement was used. Dr. Goodyear stated that the only taxonomic question concerning the silver rice rat was whether it was a species or subspecies, but that it would qualify as a distinct population segment for the following reasons: The silver rice rat is geographically separated, ecologically distinct (living in salt marshes and mangroves, and having a very large home range), and is morphologically distinct in pelage color and skull measurements from *O. palustris*. Dr. Goodyear's manuscript, entitled "The taxonomic status of the silver rice rat, *Oryzomys argentatus*", expanded on her previous taxonomic work.

Her ecological work in the Lower Keys in 1987-1988 resulted in the trap-deaths of ten silver rice rats, including seven adult males. Dr. Goodyear examined adult males of thirteen silver rice rats and 73 *O. palustris*. She used canonical discriminant function to separate seven designated taxa of *Oryzomys* and determined the Mahalonobis distance between each of the seven centroids. She found that silver rice rat males formed a distinct cluster, which was not affected by including laboratory-reared animals, but that only two of six female silver rice rats could be correctly classified by the discriminant analysis model generated using the ten males. Dr. Goodyear noted that specimens of *O. couesi*, currently considered a species by some mammologists, were more similar to *O. palustris* than *O. argentatus*, indicating that *O. argentatus* merited specific rank. She stated that adult males were necessary to distinguish silver rice rats on the basis of skull characteristics, but that pelage color could always be used to distinguish female silver rice rats from *O. palustris*. Dr. Goodyear noted that the pelage of silver rice rats had maintained its distinctive coloration in the 57 wild-caught, captive-reared and museum specimens with which she was familiar. She concluded that Humphrey and Setzer were not justified in placing *O. argentatus* in synonymy with *O. palustris*, because they did not examine the necessary diagnostic adult male silver rice rats specimens in their work.

Service response: The Service agrees that recently published taxonomic evaluations of *O. argentatus* have examined different specimens, used different measurements, and different statistical methodologies (see discussion below). The Service notes that the suggested ecological differences between the silver rice rat and mainland *O. palustris* may be exaggerated; *O. palustris* is common in many wetland habitats, including salt marshes (Wolfe 1982) while the silver rice rat apparently

uses fresh water marshes when available (Spitzer and Lazell 1978). Dr. Goodyear's comments and new information have been incorporated into this listing proposal (see discussion below).

After reviewing the best available information on the taxonomy of the silver rice rat, the Service makes the following observations. The taxonomic treatments discussed above (Spitzer and Lazell 1978; Goodyear and Lazell 1986; Humphrey and Setzer 1989) examined different samples, used different statistical techniques, and formed different opinions on the significance of the variation in *Oryzomys*. The principal characteristics analyzed consisted of skull measurements and pelage color. Humphrey and Setzer (1989) were limited in the material of *O. argentatus* available to them, lacking adult males, and were unable to find persuasive evidence that specific or subspecific status was warranted for the silver rice rat. They speculated that a larger sample of silver rice rats would be likely to have larger variance, further indicating the relationship of *O. argentatus* to mainland *O. palustris*. Dr. Goodyear's recent information, however, indicates that the silver pelage color and differences in skull ratios have remained distinctive as more material of Lower Keys rice rats has become available. She intends to publish her manuscript in the near future.

The Service panel, as well as another mammalogist, believe that the silver rice rat merits subspecific rank. It is difficult, to predict what analysis of this material by Humphrey and Setzer's (1989) methods would yield; the interpretation of observed differences would continue to be subjective. The taxonomic questions concerning the silver rice rat appear likely to be reexamined and discussed by taxonomic mammalogists into the future. At this time, the Service reserves judgement on the appropriate taxonomic rank (species, subspecies, or population) for the silver rice rat. The scientific community may come to a prevailing view on this matter in the future. However, the Service concludes that, regardless of its taxonomic status, the silver rice rat currently qualifies for protection under the Endangered Species Act because it constitutes a distinct population segment, and therefore a "species", as defined by section 3(15) of the Act. The silver rice rat of the Lower Florida Keys is disjunct from the rice rats of the Florida mainland, with very little potential for interbreeding with those populations; it has developed at least two consistent, nearly exclusive morphological characteristics (silver pelage and elongate nasal bones). A number of other vertebrate populations of the Lower Florida Keys are accepted as subspecies, indicating that natural selection has resulted in the evolution of a number of differentiated vertebrate population there. (Two mammal subspecies already federally listed as endangered species in the Lower Keys are the Key deer (*Odocoileus viginianus clavium*) and the Lower Keys rabbit (*Sylvilagus palustris hernerí*)).

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal Lists. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors and their application to the silver rice rat are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The ancestor of the silver rice rat may have colonized the Lower Florida Keys during the late Pleistocene, when sea levels were lower than at present. The cooler climate prevailing at that time, and the larger explosed land mass, would have supported more extensive mangrove forests and salt marshes than exist currently. Rising sea levels several thousand years ago reduced the land area of the Lower Keys to their current configuration, probably fragmenting and reducing the distribution and numbers of the silver rice rat (Spitzer 1983). In recent times, human impacts have further reduced silver rice rat populations. A known population on Cudjoe Key was recently extirpated (Barbour and Humphrey 1982), and Goodyear (1984) believed that the species recently occurred on Big Pine and Boca Chica Keys, where suitable habitat still exists but where she was unable to trap rice rats.

The silver rice rat is currently known from transitional wetland area on eight keys (Big Torch, Johnston, Middle Torch, Raccoon, Saddlebunch, Little Pine, Summerland, and Water Keys), where it usually occurs at very low densities for a small rodent. (Spitzer 1982; Goodyear 1984). Goodyear (1984) had only 0.47 percent trap success over the course of her survey work, although she had a 5.2 percent trap success rate on Johnston Key, an off-road key; and Vessey *et al.* (1976) considered rice rats to be common on Raccoon Key, where they had a 9.5 percent capture rate.

Much silver rice rat habitat has been lost because of commercial and residential development during the past few decades. Remaining habitat on the highway keys continues to be filled for house pads, driveways, and other purposes.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The silver rice rat is one of the most recently named species of mammals in the United States, and there are interesting questions concerning its taxonomic status, relationship to other rice rats, behavior, and ecology.. Therefore, it is likely that specimens will continue to be sought by collectors for purposes of scientific study, or by amateur naturalists. Silver rice rat populations on the on-road keys may have abnormally low densities, and collecting could have serious effects. This proposed regulation would add the additional protections against take provided by the Endangered Species Act.

C. *Disease or predation.* Goodyear (1983) found that raccoons preyed on silver rice rats. Although a native mammal of the Lower Keys, raccoons on developed keys may be unnaturally abundant due to the availability of human garbage as food. This increase may have adversely affected silver rice rat populations on these keys.

D. *The inadequacy of existing regulatory mechanisms.* The silver rice rat is listed as endangered by the Florida Game and Fresh Water Fish Commission (chapter 39-27.003, Florida Administrative Code) and is protected from pursuit, harm, harassment, capture, possession, or killing (chapter 39-27.002 and 39-27.011, Florida Administrative Code). This protection does not, however, address habitat destruction.

Portions of the range of the silver rice rat are included in Great White Heron National Wildlife Refuge and National Key Deer Refuge. Federal listing of this species would increase consideration or the habitat needs of this species in refuge management decisions.

E. *Other natural or manmade factors affecting its continued existence.* The black rat (*Rattus rattus*), an introduced Old World rat, is found on many of the Lower Florida Keys, particularly near human habitation. It may compete with the silver rice rat for space and food. The black rat is abundant on Big Pine and Coca Chica Keys, and may have contributed to the disappearance of silver rice rats from these keys. Conversely, silver rice rats are relatively abundant on Johnston (Goodyear 1984)

and Raccoon (Vessey *et al.* 1976) Keys, where black rats are absent.

On Raccoon Key, a breeding colony of rhesus monkeys (*Macaca mulatta*) has been introduced and maintained. The monkeys have defoliated the fringing mangrove trees on this key, making the silver rice rat more vulnerable to storm effects and predation.

Because of the limited amount of habitat suitable for the silver rice rat, and its large home range, further habitat fragmentation could reduce silver rice rat populations to the point that adequate genetic viability for long-term survival is not maintained.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that "critical habitat" be designated "to the maximum extent prudent and determinable" concurrent with the determination that a species is endangered or threatened. The Service finds that designation of critical habiat is not prudent at this time. As noted in factor "B" in the "Summary of Factors Affecting the Species", there may continue to be interest in collecting specimens of the silver rice rat. Most populations are of such low density that removal of even a few individuals may be deleterious to this species. Publication of critical habitat descriptions and maps could increase enforcement problems and expose the species to undesirable collecting and disturbance, placing its survival in further jeopardy. Habitat protection for the silver rice rat will be addressed through the Act's section 7 jeopardy standard.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened pursuant to the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. Currently known Federal activities that may affect the silver rice rat include the management of the Service's Great White Heron and Key Deer National Wildlife Refuges, and the U.S. Army Corps of Engineer's wetland permitting activities in the Lower Keys. These Federal agency activities, among others, will require conference or consultation with regard to any aspects that may affect the silver rice rat.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It is also illegal to posses, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and or for incidental take in connection with otherwise lawful activities.

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as efective as possible. Therefore, comments and suggestions regarding any aspect of this proposal are hereby solicited from the public, concerned governmental agencies, the scientific community, industry, and other interested parties. Comments are particularly sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to the silver rice rat;

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the distribution of this species; and .

(4) Current or planned activities in the involved area and their impacts on the subject species.

Final promulgation of the regulation on this species will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests must be made in writing and directed to the party named in the above "**ADDRESSES**" section.

National Environmental Policy Act

The Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared for regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** of October 25, 1983 (48 FR 49244).

References Cited

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List of Subjects in 50 CFR Part 17

Endangered and threatened species, Imports, Exports, Reporting and recordkeeping requirements, and Transportation.

Proposed Regulation Promulgation

PART 17—[AMENDED]

Accordingly, it is proposed to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. It is proposed to amend § 17.11(h) by adding the following, in alphabetical order under "MAMMALS", to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
MAMMALS							
*	*	*	*	*		*	
Rat, rice (-silver rice)	Oryzomys palustris natator [-O. argentatus]	U.S.A. (FL)	Lower FL Keys (west of the Seven Mile Bridge).	E		NA	NA
*	*	*	*	*		*	

Dated: October 19, 1990.

Richard M. Smith,

Director, Fish and Wildlife Service.

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